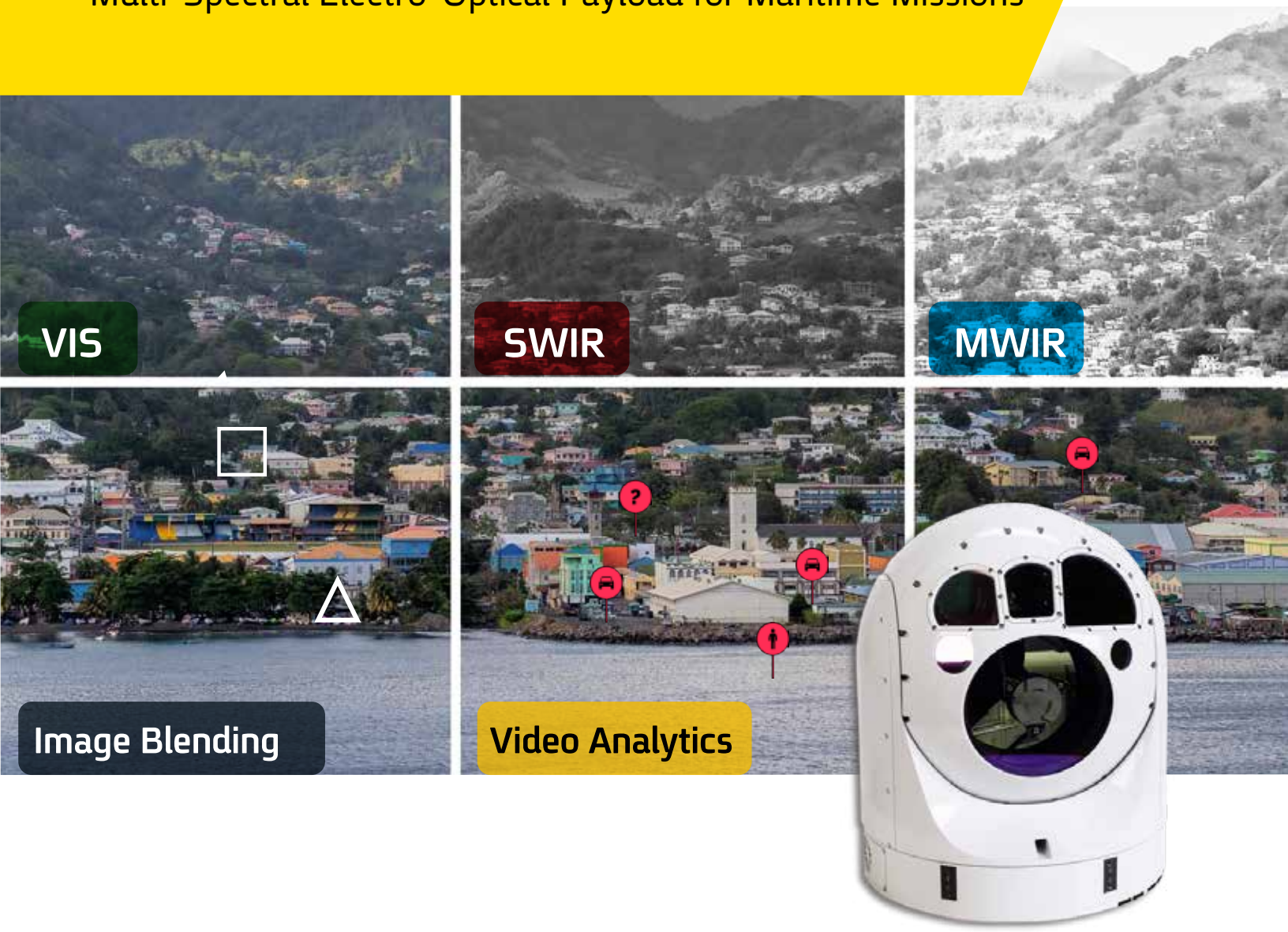
SPECTRO™XR

Multi-Spectral Electro-Optical Payload for Maritime Missions



Elbit Systems™
ISTAR & EW

SPECTRO XR

The Power to Foresee for Maritime Missions

The modern battlefield faces multiple, complex and continuously emerging challenges. A rapidly changing operational environment with numerous moving and stationary targets and advanced weapon systems, requires the support of superior target identification and tracking capabilities to anticipate enemy actions and gain operational superiority. Leveraging decades of operational experience gained by Elbit Systems' CoMPASS™ payload family, Elbit Systems designed Spectro XR to provide the ultimate operational results.

Superior multi-spectral functionality

Spectro XR is a leap forward in complex intelligence, surveillance, target acquisition and reconnaissance capabilities. Suitable for today's operational complexity, the multi-spectral, lightweight electro-optic payload system is designed for day/night and all weather extended range surveillance. Spectro XR also provides continuous target scanning capabilities for enhanced situational awareness.

Spectro XR integrates a wide range of digital imaging, high-definition optical sensors and advanced lasers, providing simultaneous multi-spectral observation capabilities and enabling ultra-long-range detection. The highly stabilized multi-spectral imaging system combines multiple optical channels into one, significantly improving performance without increasing size and weight.

Spectro XR, an ITAR free system, can be easily integrated on various platforms, including fixed and rotary wing aircraft, naval vessels and armored vehicles.

Superior optics: Combines multiple cameras into one using a 7" front aperture, improving capability for longer range surveillance.

Short Wave Infrared (SWIR) channel: Improved observation capabilities in low visibility and challenging atmospheric conditions, such as smoke, haze and dust.

Complete Laser Suite:

- High power, narrow beam Laser Target Designator Range Finder (LTDRF) for semi-active laser homing munitions at up-to 22Hz Pulse Repetition Frequency (PRF).
- Eye-safe Laser Range Finder capable of high pulse repetition rate.
- Near Infrared Laser illuminator and pointer compatible with NVG (Night Vision Goggles).
- Quadrant detector LST (Laser Spot Tracker).

Spectral Smart FUSION capability:

A smart blending mechanism that allows creating "multi-spectral" images from sensors. The system creates a high quality blended image superior to alternative EO payloads that are aligned due to the utilization of the shared aperture telescope for the narrow channels.

AI-based mission support:

Spectro XR uses AI technology to automatically detect and classify targets in real-time. The system reduces human error in mission execution and enables advanced operational insights through an innovative and unique video analytics suite.

Reduced cognitive overload:

AI capabilities enhance mission effectiveness by enabling the operator to focus on the mission.

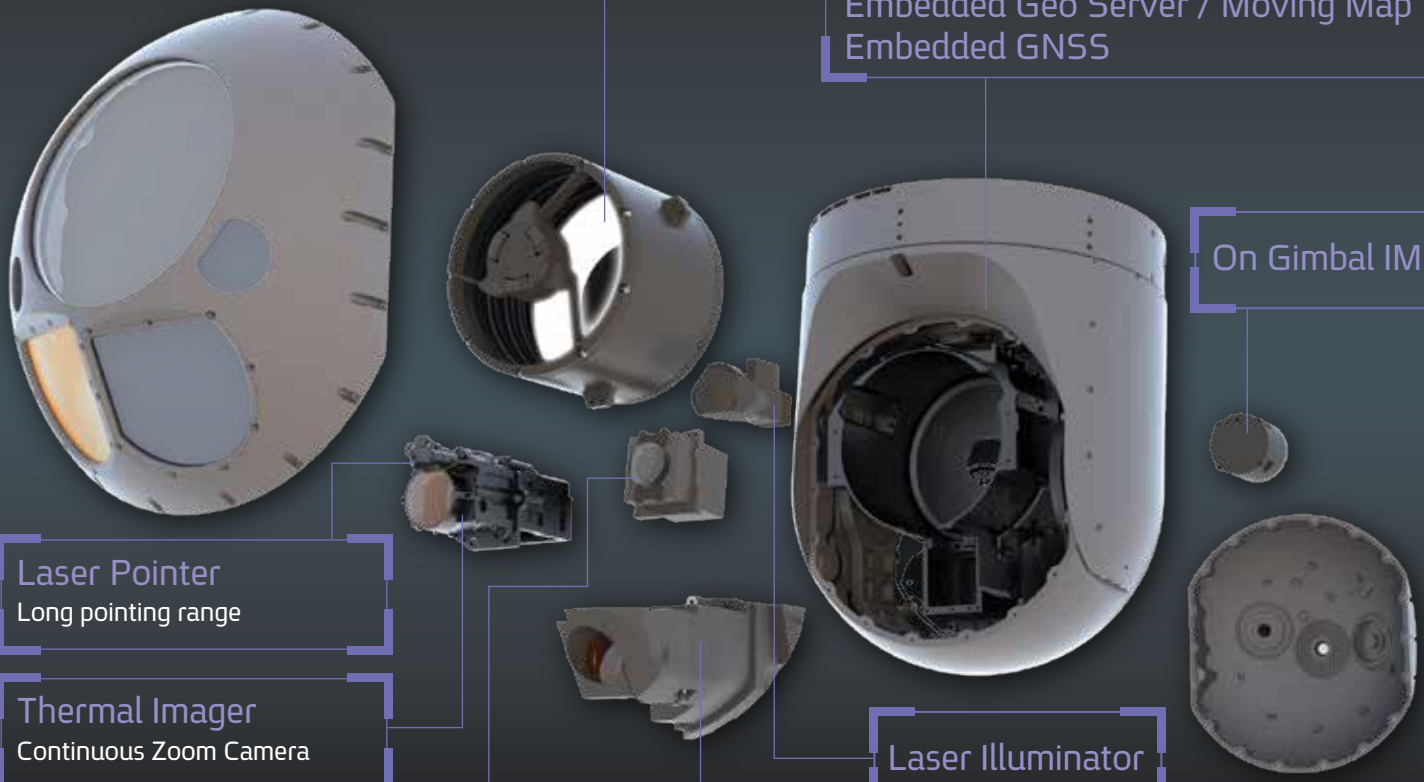
Designed to Lead

Insight into SPECTRO revolutionary set of sensors reveal a powerhouse of technology, packed in lightweight operational package.

Common Aperture Multi Spectral Telescope

Thermal imager spotter camera, Visible / NIR spotter camera with Dual FOV optics, SWIR spotter camera with Dual FOV optics

Advanced Video Processing
Automated Video Tracker
Embedded Media Server / DVR
Embedded Geo Server / Moving Map
Embedded GNSS



On Gimbal IMU

Laser Pointer

Long pointing range

Thermal Imager

Continuous Zoom Camera

Visible Zoom Camera

Low light mode

Laser Illuminator

Eye-safe Laser Range Finder
Laser Designator Range Finder

SPECTRO™XR for Maritime Missions

HD Thermal Imaging Channel	
Configuration	Spotter and continuous zoom optics combination
Sensor	1280x1024 InSb
Wavelength	3÷5µm
FOVs	1.0°, 3.7°÷25°

Full HD Visible Channel	
Configuration	Spotter and continuous zoom optics combination
Sensor	1920x1080 CMOS
Wavelength	Visible (color), Near IR (black/white)
FOVs	0.36°, 0.72°, 2.1°÷25°
Operational modes	Low light, haze penetration, color intesifier

HD SWIR (Short Wave IR) Channel	
Configuration	Dual FOV spotter, option for additional wide FOV sensor
Sensor	1280x1024 InGaAs or 640x512 InGaAs
	See spot supported
FOVs	0.25°, 0.57°
	Quadrant detector (interchangeable with laser illuminator)

Laser	
Configuration	LRF or LTDRF
LRF (Laser Range Finder)	1534nm, up to 1Hz, Class 1
LTDRF (Laser Target Designator Range Finder)	1064nm, up-to 22Hz, Class 4, STANAG-3733
	1570nm, up to 3Hz, Class 1M
Illuminator	Diode, 808nm, Continuous, Class 4
Pointer	Diode, 830nm, Continuous / Pulsed, Class 3B
Laser Spot Tracker	Quadrant detector (interchangeable with laser illuminator)

Advanced Video Analytics	
Image blending	Real-time image fusion
Video Tracker	Up to 5 targets simultaneously
MTI (Moving Target Indication)	Up to 5 targets simultaneously
ATR (Automatic Target Indication)	Real-time detection and classification to target type of static and dynamic targets
VMD (Video Motion Detection)	Real-time detection of dynmaic targets

Turret Specifications	
Weight	51kg
Diameter	415mm
Height	500mm

Line-of-Sight Control	
Line-of-sight Stabilization	Typically < 5 µrad . Pending on platform vibretaion profile
Gimbals Dynamics	Az/El slew rate: 0÷60 °/sec
	Azimuth field of regard: continuous 360°
	Elevation field of regard: -120°÷+90°
Gimbals Configuration	2 axis inner gimbals (pitch / yaw)
	2 axis outer gimbals (azimuth / elevation)

Navigation	
IMU	Tactical grade, fiber-optics gyros
	Embedded Geo-pointing, Geo-steering and Geo-location
GNSS	Embeded GPS receiver

System Interfaces	
Video	5 digital SMPTE 292M/424M
	5 analog NTSC/PAL/STANAG-3350
Metadata	STANAG-4609 compliant
Interface types	1Gb Ethernet, MIL-STD-1553B, ARINC-429, RS-422
Power	500W (average)

Elbit Systems Ltd.
E-mail: istar@elbitsystems.com www.elbitsystems.com

Follow us on

The logo brand, product, service, and process names appearing herein are the trademarks or service marks of Elbit Systems Ltd., its affiliated companies or, where applicable, of other respective holders.
All information in this document is for general information only, and is subject for change without notice. © 2016. This brochure contains Elbit Systems and others proprietary information. EP23-MTK-043